بسم الله الرحمن الرحيم

Smart Cities
An exploration journey

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Kindly answer the question in the following link:

http://bit.do/zaaaaaz

Let us take a few journeys

Date: 9000 BC

Jerihco – Jordan

Date: 5000 -4500 BC

Ur– Iraq

Date : 13 Century BCE
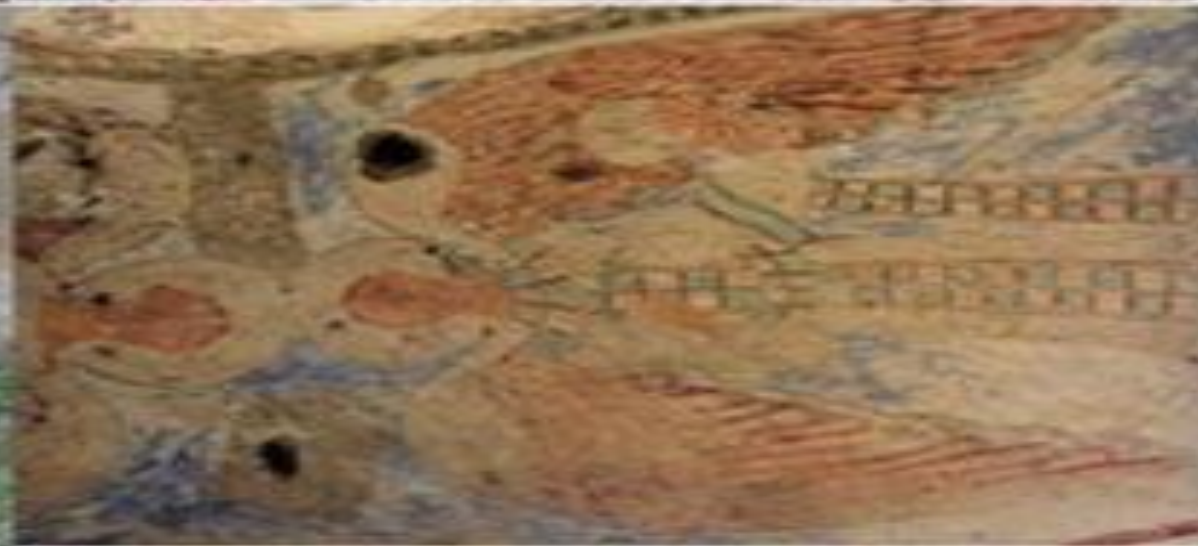

Tory – Turkey

Date: 3600 BC

Babylon – Iraq

Date: 2000 BC

The Neolithic City of Shimao – China

Date: 3200 BC

The underground city of Ani – Armenia

Date: 1ˢᵗ Millennium BC

Carthage – Tunisia

Date: 2ˢᵗ Millennium BC

Aleppo – Syria

Date: third or second century BC

Hatra – Iraq

Our second journey is in inventions/innovation

5200 – 4700 BC

The Wheel

2500 BC

onager-drawn cart

3400 - 3300 BC

The Writing

1754 BC

Code of Hammurabi

The Republic

The **Republic** is a [Socratic dialogue](), written by [Plato]() around 380 BC, concerning [justice]() , the order and character of the just [city-state](), and the just man. It is Plato's best-known work, and has proven to be one of the world's most influential works of [philosophy]() and [political theory](), both intellectually and historically.

In the dialogue, [Socrates]() discusses with various Athenians and foreigners about the meaning of justice and whether the just man is happier than the unjust man.[5] They consider the natures of existing regimes and then propose a series of different, hypothetical cities in comparison, culminating in Kallipolis, a city-state ruled by a [philosopher king](). They also discuss the [theory of forms](), the [immortality]() of the [soul](), and the role of the philosopher and of [poetry]() in [society]().

Maslow's hierarchy of needs
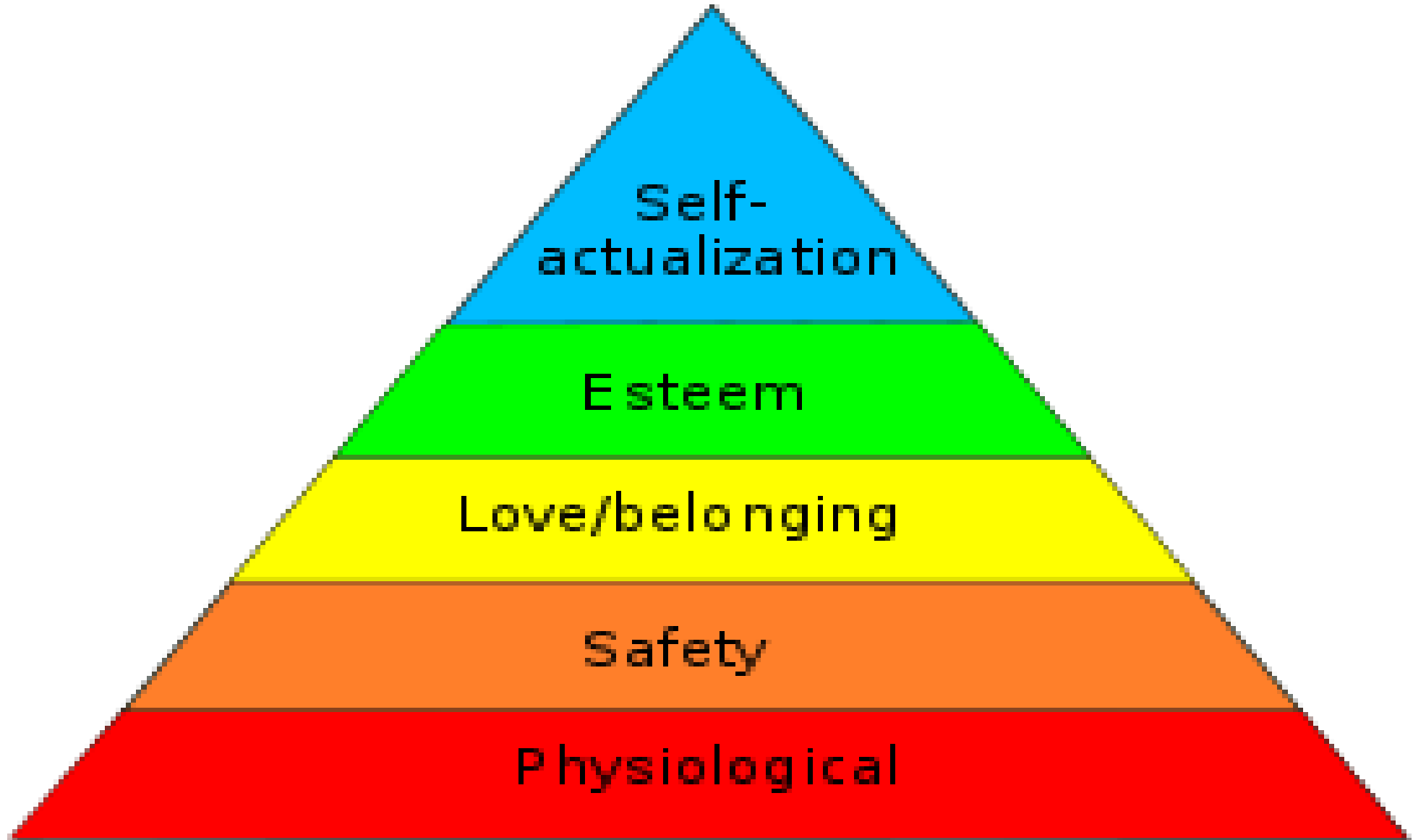
The Journey Continues

Smart Cities

Is it ancient? Is it modern? Is it a dream? Is it a fashion? what is it?

The What
The How
The Why
The Why Now
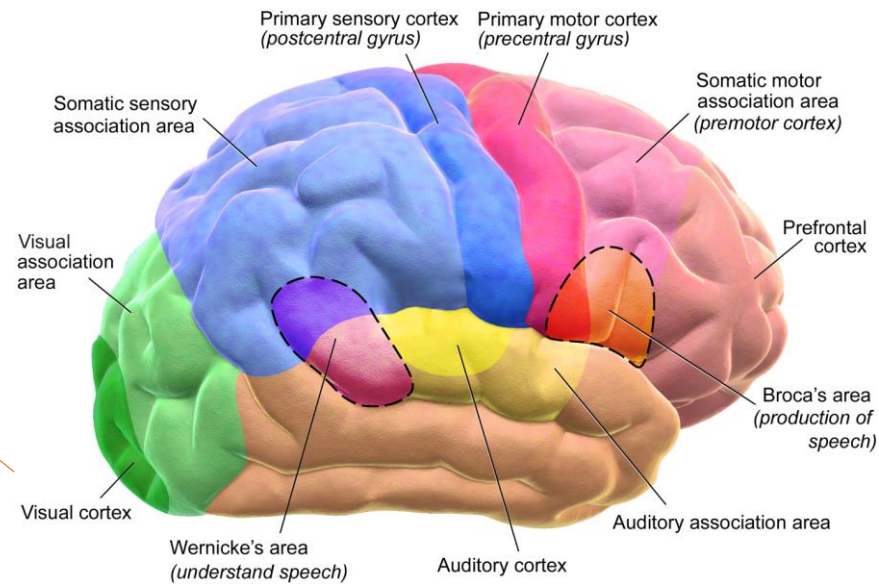
Smart?

Human

Human Made

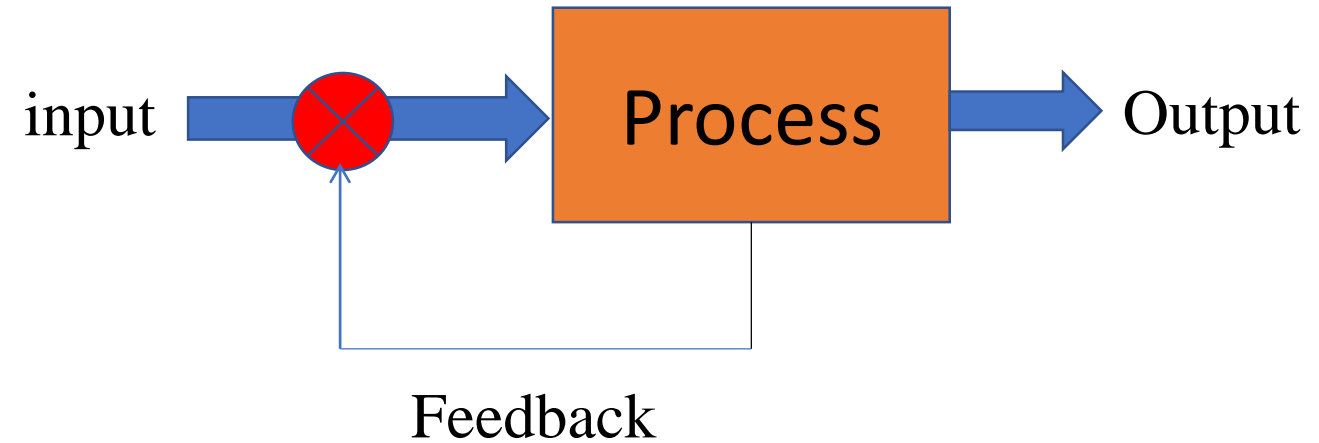https://youtu.be/wgbV6DLVezo

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Smart?

Basis .....

Open Feedback System

Closed Loop
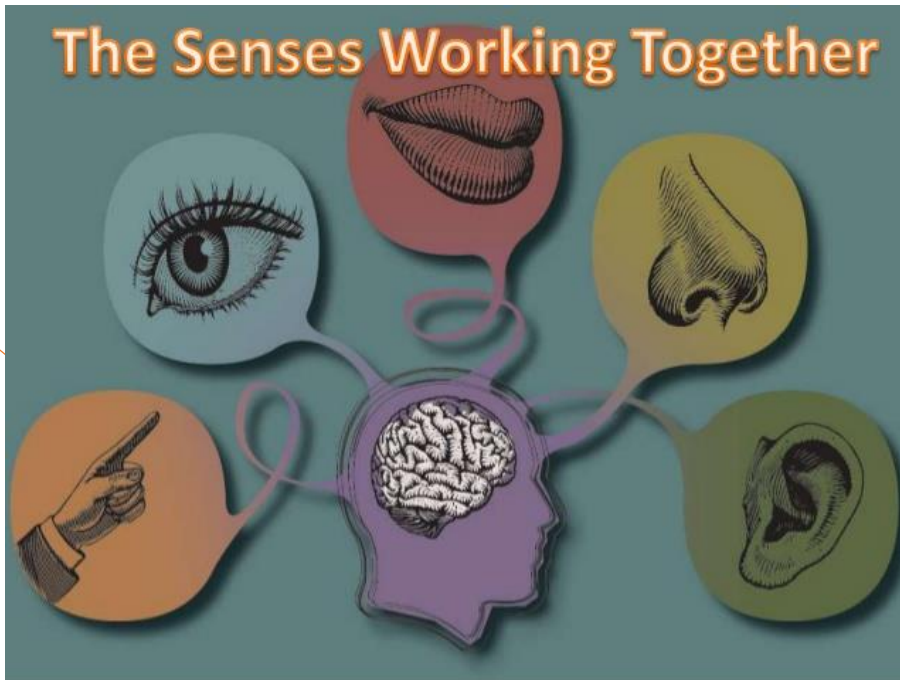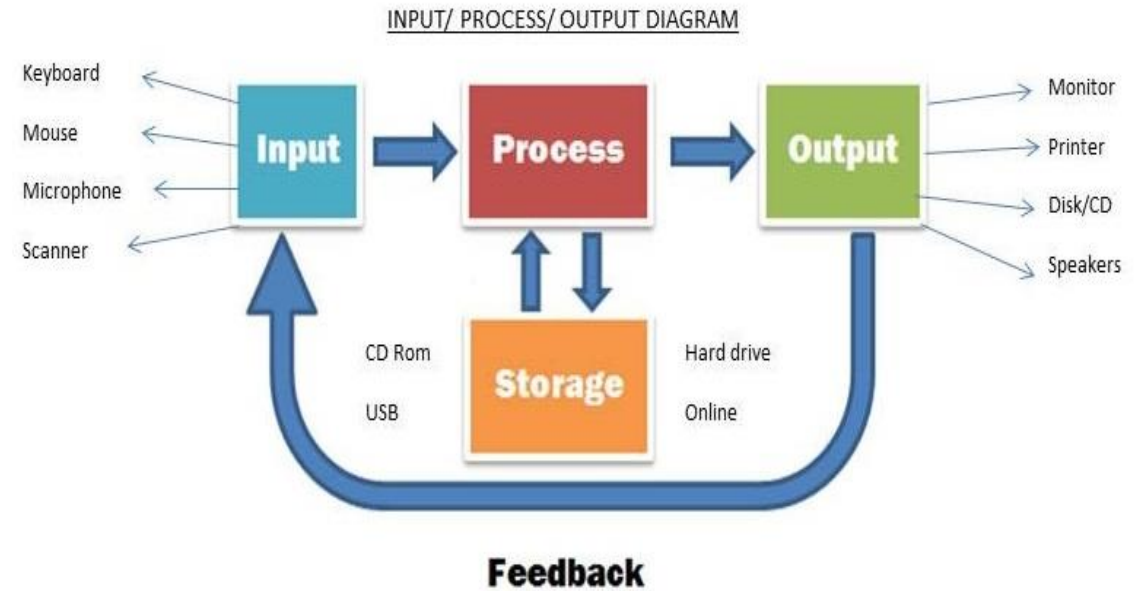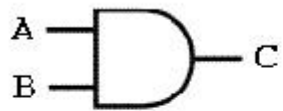
input → Process → Output

input → ⊗ → Process → Output

Feedback

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Smart?

Basis …..

Human

The Senses Working Together

Human Made

INPUT/ PROCESS/ OUTPUT DIAGRAM

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Smart?

Basis …..

- Logic
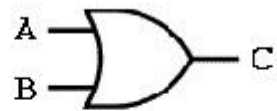
Smart?

Sensors, Transducers and Acturators

Sensors

Sensors detect the presence of energy, changes in or the transfer of energy. Sensors detect by receiving a signal from a device such as a transducer, then responding to that signal by converting it into an output that can easily be read and understood. Typically sensors convert a recognized signal into an electrical – analog or digital – output that is readable. In other words, a transducer converts one form of energy into another while the sensor that the transducer is part of converts the output of the transducer to a readable format.

Touch Sensor

Ultrasonic Sensor

PIR Sensor
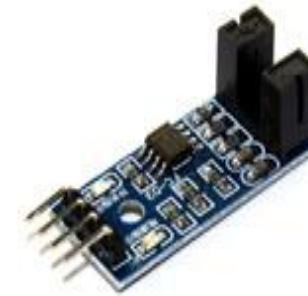
Speed Sensor

Temperature Sensor

Different Types of Sensors and Their Applications

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Smart?

Transducers

A transducer is any device which converts one form of energy into another. Examples of common transducers include the following: A microphone converts sound into electrical impulses and a loudspeaker converts electrical impulses into sound (i.e., sound energy to electrical energy and vice versa). A solar cell converts light into electricity and a thermocouple converts thermal energy into electrical energy.

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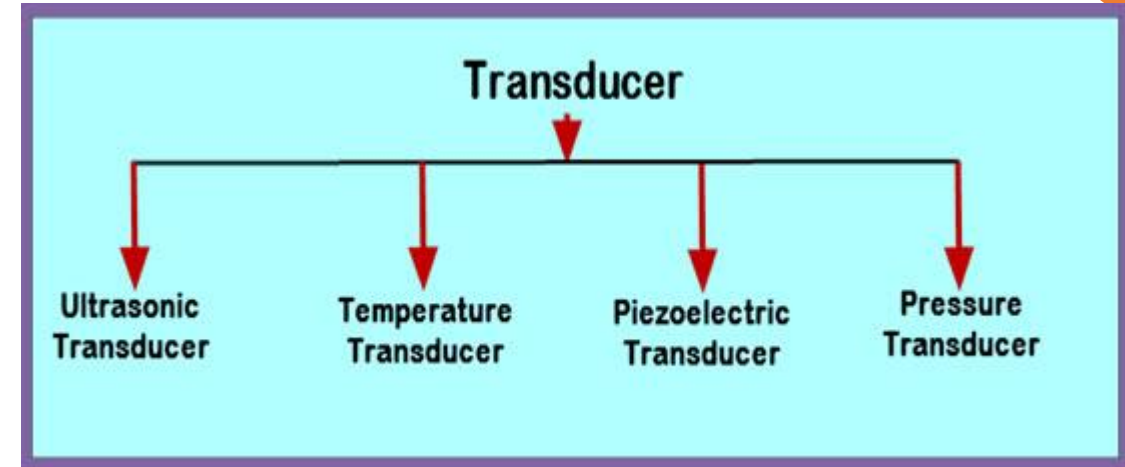
The Journey Continues

The above has contributed to the evolution of the

IoTs

http://bit.ly/2I3ruEq

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Our third joureny shall be reviewing literature on Smart City

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Smart City in the literature

- **IEEE**

- Municipalities large and small are finding ways to use technology to make life easier for their residents and visitors. Among the cities striving to make themselves smarter are Barcelona; Da Nang, Vietnam; Edmonton, Alta., Canada; Fort Lauderdale, Fla.; and Rio de Janeiro.

- Regardless of size, cities are becoming too crowded, and the lure of technology is appealing. A little more than half of the world's population now resides in cities, according to the World Health Organization, and that proportion is expected to grow. The WHO predicts that 60 percent of the world's population will live in cities by 2030, and 70 percent by 2050.

- *Because each city has its own challenges, there's no one-size-fits-all solution.*

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Smart City in the literature

- **IEEE**

IEEE Standards Help Enable Smart City Technologies for Humanity
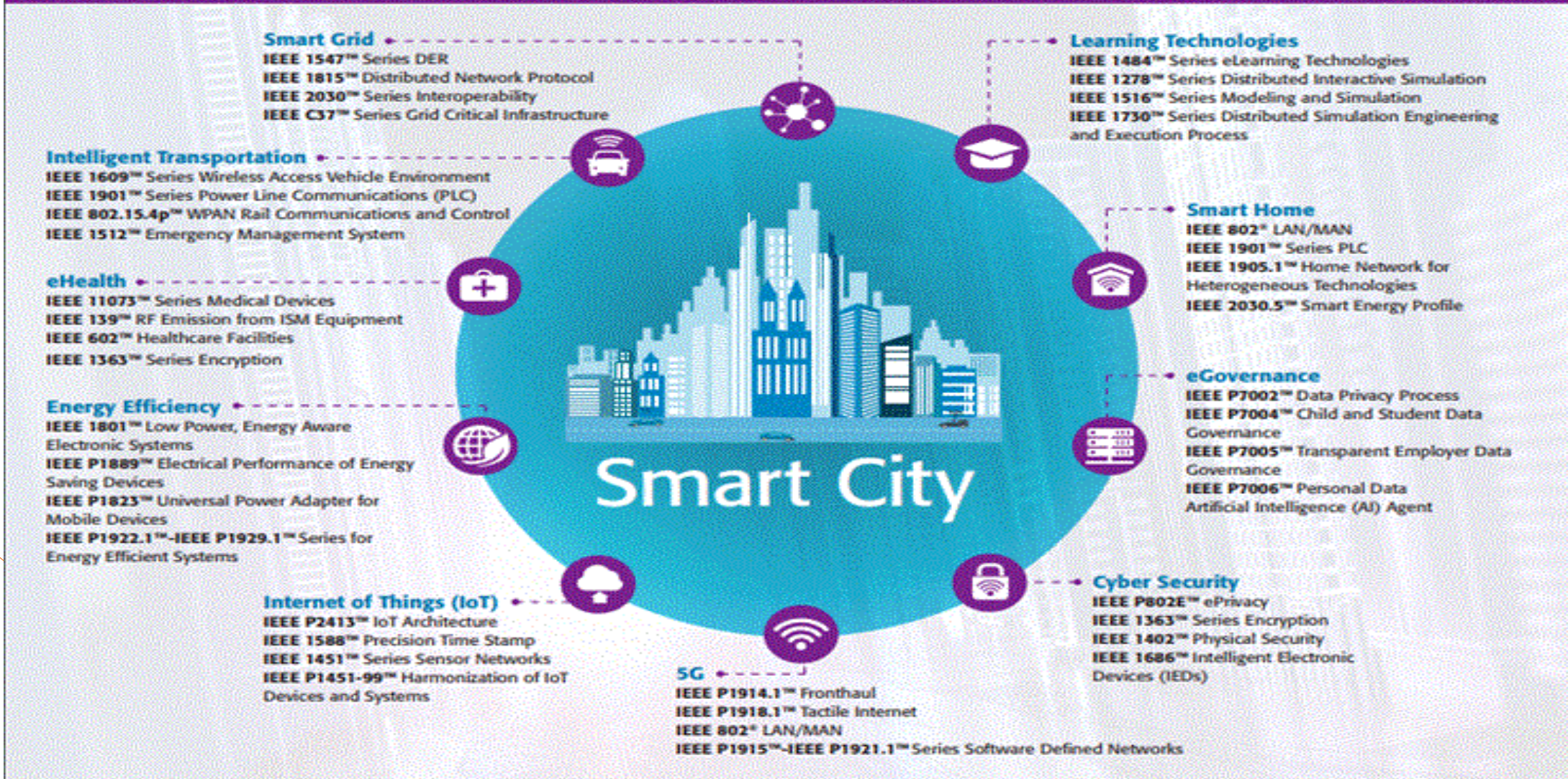
Smart City in the literature

- **Visual Capitalist**

- **The world is now urbanized**

Year	1800	1950	2008	2040
Percent Population in Cities	**3%**	**29%**	**50%**	**65%**

- **1.3 Million people are now moving to cities every week.**

Smart City in the literature

- **Visual Capitalist**

- **There are 21 megacities with over 10 Million people.**
- **Up until 1975 there were only three: Tokyo, New York and Mexico City.**
- **Tokyo has 36 Million. If it was a country, it would rank 35th in population size.**
- **By 2025, the number of megacities is expected to reach 29.**
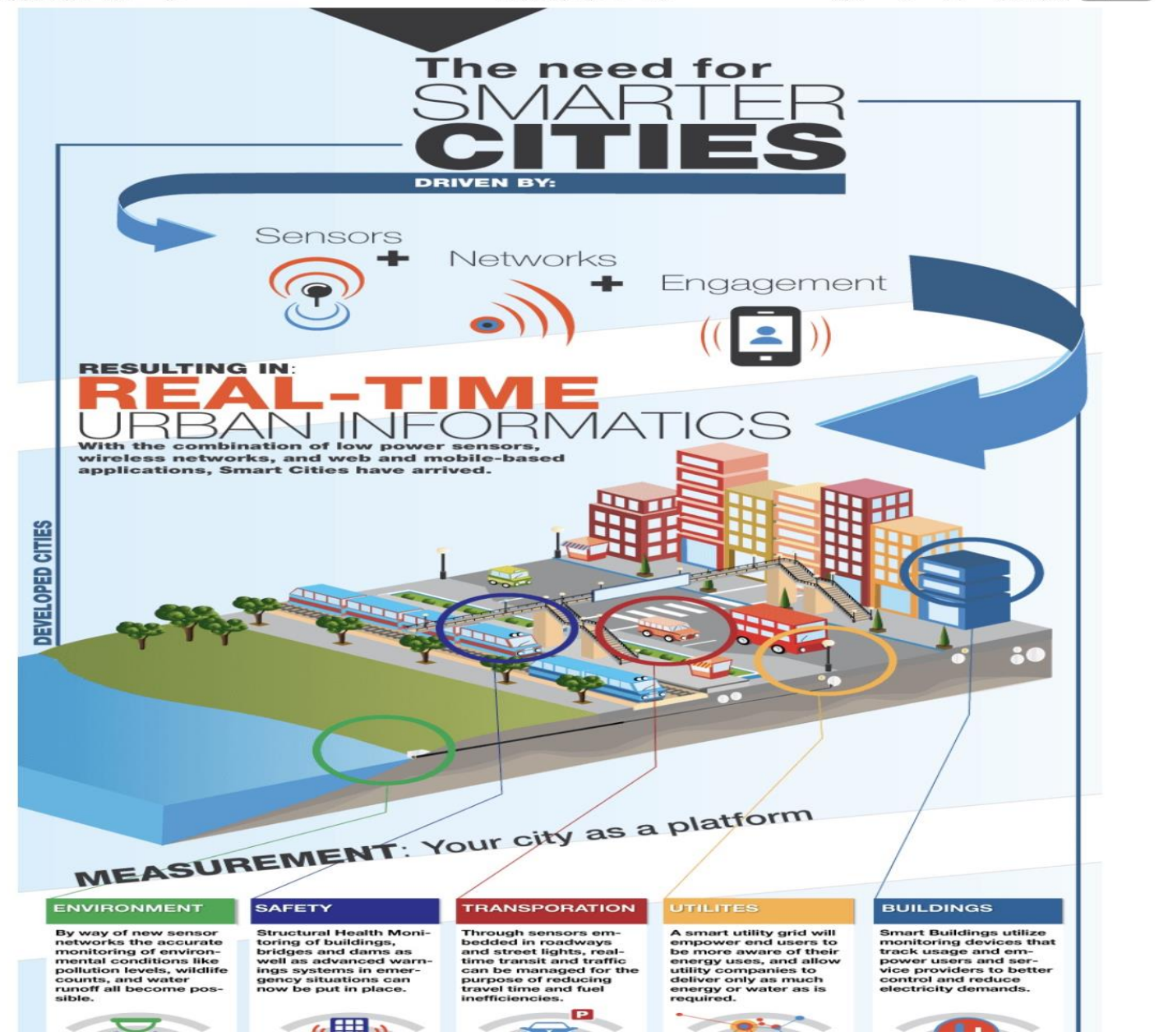
Smart City in the literature

- **Visual Capitalist**

- **The number of cities with more than 1 Million population were 12 in 1900 , 83 in 1950 and more than 500 in 2011.**

- **China would have 221 cities with more than 1 Million people by 2025.**

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Smart City in the literature

- ## **Visual Capitalist**

- ## **Economic Influence:**

- **The top 600 urban centers generate 60% of the global GDP.**

- **In the developing world, as much as 80% of the economic growth shall happen in the cities.**

- ## **Environmental Impact**

- **Cities use 60-80% of the world's energy needs.**

- **Lighting alone represents 19% of the world's total energy consumption.**

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Smart City in the literature

- **Visual Capitalist**

Smart City in the literature

- ## World Economic Forum

- **Smart cities have an opportunity to become far more inclusive**

- For urban planners, data and technology are valuable tools in the drive to improve administration and services. But while these innovations are making urban environments more livable, they come with a hidden cost: the potential to deepen inequality among digitally marginalized groups.

- Around the world, governments are making cities "smarter" by using data and digital technology to build more efficient and livable urban environments. This makes sense: with urban populations growing and infrastructure under strain, smart cities will be better positioned to manage rapid change.

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Smart City in the literature

- World Economic Forum

- **Smart cities have an opportunity to become far more inclusive**

- But as digital systems become more pervasive, there is a danger that inequality will deepen unless local governments recognize that tech-driven solutions are as important to the poor as they are to the affluent.

- While offline populations can benefit from applications running in the background of daily life – such as intelligent signals that help with traffic flows – they will not have access to the full range of smart-city programs. With smartphones serving as the primary interface in the modern city, [closing the digital divide](), and extending access to networks and devices, is a critical first step.

- City planners can also deploy technology in ways that make cities more inclusive for the poor, the disabled, the elderly, and other vulnerable people.

- WEF uses IESE's Cities in Motion Index to decide the World's Smartest Cities.

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Smart City in the literature

- IBM

Smart City in the literature

- IBM

San Jose, United States
2017
Social Services   Americas

Yamagata City, Japan
2017
Economic Development   Asia

Smart City in the literature

- **Wikipedia**

- A **smart city** is an urban area that uses different types of electronic data collection sensors to supply information which is used to manage assets and resources efficiently. This includes data collected from citizens, devices, and assets that is processed and analyzed to monitor and manage traffic and transportation systems, power plants, water supply networks, waste management, etc.

- The smart city concept integrates information and communication technology (ICT), and various physical devices connected to the network (the Internet of things or IoT) to optimize the efficiency of city operations and services and connect to citizens.

- ICT is used to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to increase contact between citizens and government.[5] Smart city applications are developed to manage urban flows and allow for real-time responses.[6] A smart city may therefore be more prepared to respond to challenges than one with a simple "transactional" relationship with its citizens.[7][8]Yet, the term itself remains unclear to its specifics and therefore, open to many interpretations.

Smart City in the literature

- **Forbes**

- Referred to IESE Cities in Motion Index. The index is prepared by IESE Business School's Center for Globalization and Strategy under the direction of professors Pascual Berroneand Joan Enric Ricart.

- The fifth edition *of the index analyzes the level of development of 165 cities from 80 countries*, across nine dimensions considered key to being a smart, sustainable city.

- While most smart cities rankings are focused solely on the use of smart technology or specific measures of environmental sustainability, to perform well on this index a city must perform well across a number of different elements. *After all, it is not much good having an environmentally friendly city if crime & unemployment is so high no one wants to live there.*

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Smart City in the literature

- **Accenture**

Smart City in the literature

- **Deloitte**

Figure 1. Deloitte smart city framework
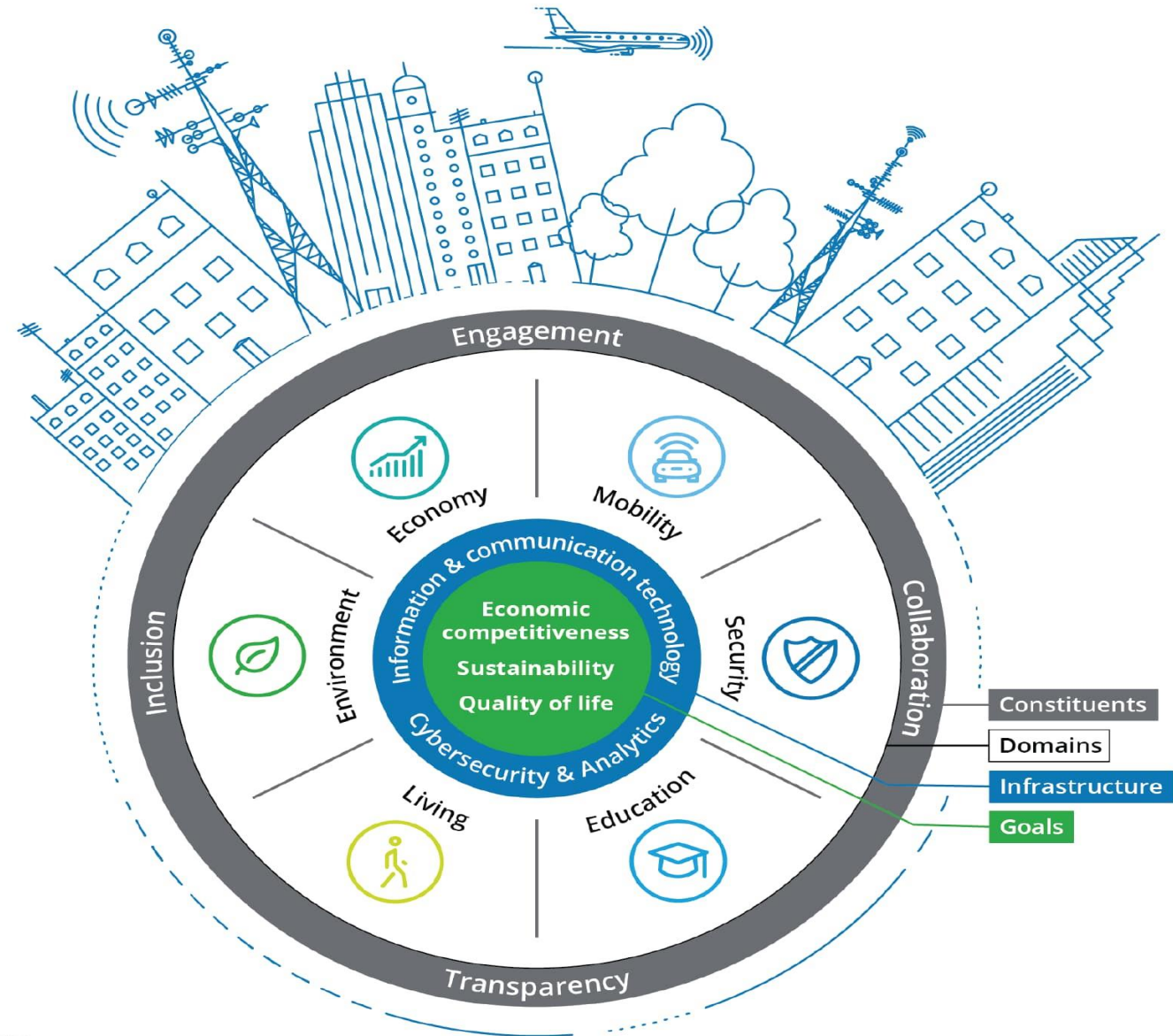
Source: Deloitte.

Our fourth joureny shall be in several aspects of the developments of cities

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Transportation & Traffic

Subtitle

A Glance at the History of Traffic and Transport

1807 The Welsh Swansea and Mumbles Railway ran the world's first passenger tram service
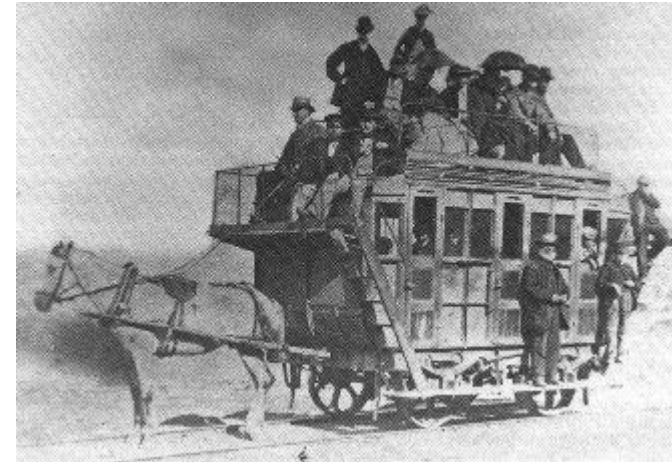
1817 The first verifiable claim for a practically used bicycle belongs to German Baron Karl von Drais,

A Glance at the History of Traffic and Transport

On 9 December 1868, the first non-electric gas-lit traffic lights were installed outside the Houses of Parliament in London to control the traffic in Bridge Street, Great George Street, and Parliament Street.

The first automated system for controlling traffic signals was developed by inventors Leonard Casciato and Josef Kates and was used in Toronto in 1954

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Advances in Traffic and Transport

TRANSYT-7F is an acronym for TRAffic Network StudY Tool, version 7F. The original TRANSYT model was developed by the [Transport Research Laboratory](#) in the United Kingdom. TRANSYT, version 7 was "Americanized" for the Federal Highway Administration (FHWA); thus the "7F." The TRANSYT-7F program and the original TRANSYT-7F manual were developed for the Federal Highway Administration (FHWA) under the National Signal Timing Optimization Project (NSTOP) by the University of Florida Transportation Research Center (TRC). TRANSYT-7F continues to undergo further development, and is currently maintained by the University of Florida's McTrans Center.

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Smart City as a closed loop?

- … actuating subsystems enter the picture, the city as a whole may be compared to a nervous system, where reactive mechanisms are in place, either mediated centrally or even working entirely autonomously.

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The future of transport

https://trl.co.uk/

Example

Summary

TRL provided iMAAP for advanced crash data analysis with GIS, meeting the Abu Dhabi Department of Municipalities and Transport 's need for better information without the time, risk and expense of developing its own solution from scratch.

https://youtu.be/wXh_pO414Po

U.S. DOT AUTOMATION PRINCIPLES

The United States Department of Transportation (U.S. DOT) has established a clear and consistent Federal approach to shaping policy for automated vehicles, based on the following six principles.

1. We will prioritize safety.

2. We will remain technology neutral.

3. We will modernize regulations.

4. We will encourage a consistent regulatory and operational environment.

5. We will prepare proactively for automation.

6. We will protect and enhance the freedoms enjoyed by Americans.

https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf

Intelligent Transportation Systems

https://www.its.dot.gov/

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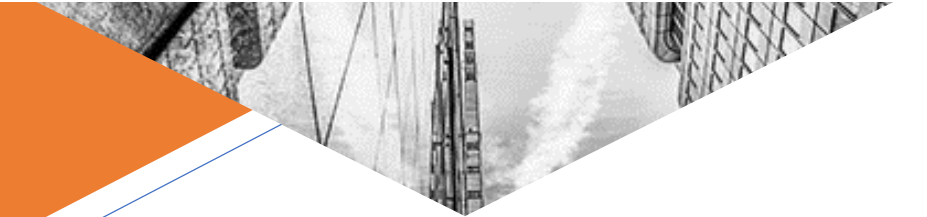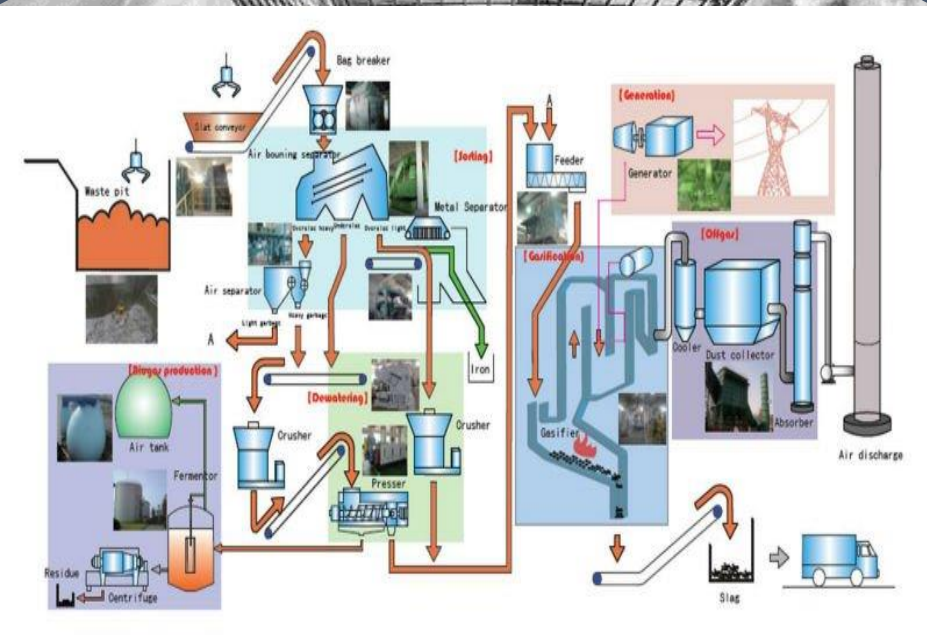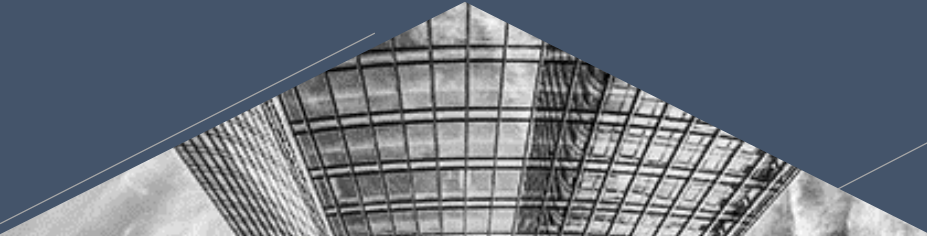
Solid Waste Management

https://youtu.be/MR9tIMEGV_s

https://youtu.be/iQqlGsLddB8

Solid Waste Management in Smart Cities using IoT

https://acadpubl.eu/jsi/2018-118-7-9/articles/7/84.pdf

Kindly answer the question in the following link:

http://bit.do/acccccca

SMART BUILDINGS

1	Ambient Intelligence Agent (AmI) Control	6	Automatic Pet Feeder	12	Lawn Moisture Sensor
2	Light Sensor	7	Motorized Drapes	13	Face Recognition Sensor
3	Windows and Door Control	8	Automatic Watering	14	Motion Sensors
4	HVAC Control	9	Mailbox Sensor	15	Door Sensors
5	Lighting Control	10	Driveway Sensor	16	AmI Interface with Car
		11	Security System	17	AmI Interface with Smart Phone

Let us review the results of the first question:

http://bit.do/eHPLs

Social – Health Care

Health Care in the IoI

https://youtu.be/Y8288eEEsmc

Health Care in the Smart City

https://youtu.be/7c1h5ncLLAk

Let us review the results of the Second question:

http://bit.do/abbbbba

How cities are ranked, is the subject of our fifth journey

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The world's smartest cities

Based on the IESE Cities in Motion Index, 2018

1. New York, USA

2. London, UK

3. Paris, France

4. Tokyo, Japan

5. Reykjavik, Iceland

6. Singapore

7. Seoul, South Korea

8. Toronto, Canada

9. Hong Kong SAR

10. Amsterdam, Netherlands

Source: IESE

IESE Business School — University of Navarra

Cities in Motion INDEX 2018

This index measures key global cities' sustainability and the quality of life for inhabitants.

165 cities
80 countries
74 capitals

TOP-50 CITIES THAT HAVE ADVANCED THE MOST SINCE 2015

	Places gained	Principal strength
22nd Helsinki	+9	
26th Barcelona	+8	
45th Milan	+13	

Europe, with 12 cities ranking among the top 25 in the world, continues to be the best positioned geographical area

The size of the city matters, but it is not an essential condition to achieve good results

Top 50 Ranking

- ○ Cities that have advanced since 2015
- ○ Cities that have stayed in the same place
- ○ Cities that have fallen back
- +3 Places gained
- -3 Places lost

CITY — PRINCIPAL STRENGTHS / WEAKNESS

Rank	Change	City
1	+1	New York
2	-1	London
3	0	Paris
4	0	Tokyo
5	0	Reykjavík
6	0	Singapore
7	0	Seoul
8	+1	Toronto
9	-1	Hong Kong
10	+1	Amsterdam
	-1	Berlin
12	+3	Melbourne
13	+3	Copenhagen
	-1	Chicago
15	+2	Sydney
16	+2	Stockholm
	-3	Los Angeles
18	+5	Wellington
19	+1	Vienna
20	+1	Washington
	-2	Boston
22	+9	Helsinki
	-11	Oslo
	-2	Zurich
25	+4	Madrid
26	+8	Barcelona
	-3	San Francisco
	-3	Auckland
	-3	Bern
30	+3	Dublin
31	+6	Hamburg
	-5	Geneva
33	+3	Gothenburg
34	+4	Basel
	0	Ottawa
	-6	Vancouver
	-9	Munich
38	+1	Montreal
	-7	Houston
40	+1	Prague
41	+1	Dallas
42	+5	Frankfurt
43	+4	Rotterdam
44	-13	Lyon
45		Milan
	-5	Philadelphia
47	+2	San Diego
	-4	Brussels
	-10	Berlin

WINNERS' PODIUMS BY DIMENSION:

Dimension	Podium
Human Capital	1 London / 2 Los Angeles / 3 Boston
Social Cohesion	1 Helsinki / 2 Bern / 3 Berlin
Economy	1 New York / 2 Tokyo / 3 Los Angeles
Governance	1 Bern / 2 Melbourne / 3 Geneva
Environment	1 Reykjavík / 2 Wellington / 3 Copenhagen
Mobility and transportation	1 Paris / 2 London / 3 Seoul
Urban planning	1 New York / 2 Toronto / 3 Paris
International outreach	1 Paris / 2 London / 3 New York
Technology	1 Hong Kong / 2 Singapore / 3 Amsterdam

@ie_cim #IESECIM
More information at ieseinsight.com

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TABLE 13. TOP 10 BY DIMENSION

ECONOMY

New York City-USA	1
San Francisco-USA	2
Boston-USA	3
London-United Kingdom	4
Los Angeles-USA	5
Tokyo-Japan	6
Washington, D.C.-USA	7
Chicago-USA	8
Houston-USA	9
Dallas-USA	10

HUMAN CAPITAL

London-United Kingdom	1
Boston-USA	2
Washington, D.C.-USA	3
New York City-USA	4
Los Angeles-USA	5
Tokyo-Japan	6
Paris-France	7
Chicago-USA	8
San Francisco-USA	9
Philadelphia-USA	10

SOCIAL COHESION

Helsinki-Finland	1
Zurich-Switzerland	2
Stuttgart-Germany	3
Basel-Switzerland	4
Prague-Czech Republic	5
Copenhagen-Denmark	6
Antwerp-Belgium	7
Munich-Germany	8
Tallinn-Estonia	9
Berlin-Germany	10

ENVIRONMENT		PUBLIC MANAGEMENT	
Zurich-Switzerland	1	Geneva-Switzerland	1
Tallinn-Estonia	2	Washington, D.C.-USA	2
Vienna-Austria	3	Baltimore-USA	3
Stockholm-Sweden	4	New York City-USA	4
Linz-Austria	5	Dubai-United Arab Emirates	5
Zagreb-Croatia	6	Abu Dhabi-United Arab Emirates	6
Vilnius-Lithuania	7	Riyadh-Saudi Arabia	7
Tokyo-Japan	8	Boston-USA	8
Ljubljana-Slovenia	9	Miami-USA	9
Singapore	10	Jeddah-Saudi Arabia	10
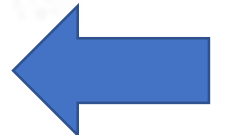
GOVERNANCE

Ottawa-Canada	1
Toronto-Canada	2
Vancouver-Canada	3
Auckland-New Zealand	4
Melbourne-Australia	5
New York City-USA	6
Chicago-USA	7
Montreal-Canada	8
Birmingham-United Kingdom	9
Helsinki-Finland	10

URBAN PLANNING

Amsterdam-Netherlands	1
Suzhou-China	2
Oslo-Norway	3
Geneva-Switzerland	4
New York City-USA	5
Warsaw-Poland	6
Berlin-Germany	7
Paris-France	8
Rotterdam-Netherlands	9
Wrocław-Poland	10

INTERNATIONAL OUTREACH

Paris-France	1
London-United Kingdom	2
Bangkok-Thailand	3
Barcelona-Spain	4
New York City-USA	5
Istanbul-Turkey	6
Amsterdam-Netherlands	7
Beijing-China	8
Rome-Italy	9
Berlin-Germany	10

TECHNOLOGY

Taipei-Taiwan	1
New York City-USA	2
Baltimore-USA	3
Seoul-South Korea	4
Tokyo-Japan	5
Amsterdam-Netherlands	6
Shanghai-China	7
Beijing-China	8
Taichung-Taiwan	9
Chicago-USA	10

MOBILITY AND TRANSPORTATION

London-United Kingdom	1
Seoul-South Korea	2
Frankfurt-Germany	3
Shanghai-China	4
Paris-France	5
Madrid-Spain	6
Stockholm-Sweden	7
Berlin-Germany	8
Vienna-Austria	9
Munich-Germany	10

Indices

1) Global Cities Index
2) City Prosperity Index
3) The Global Financial Centers Index
4) Global Power City Index

FIGURE 5

New York-USA

London-UK

Paris-France

San Francisco-USA

Boston-USA

Amsterdam-Netherlands
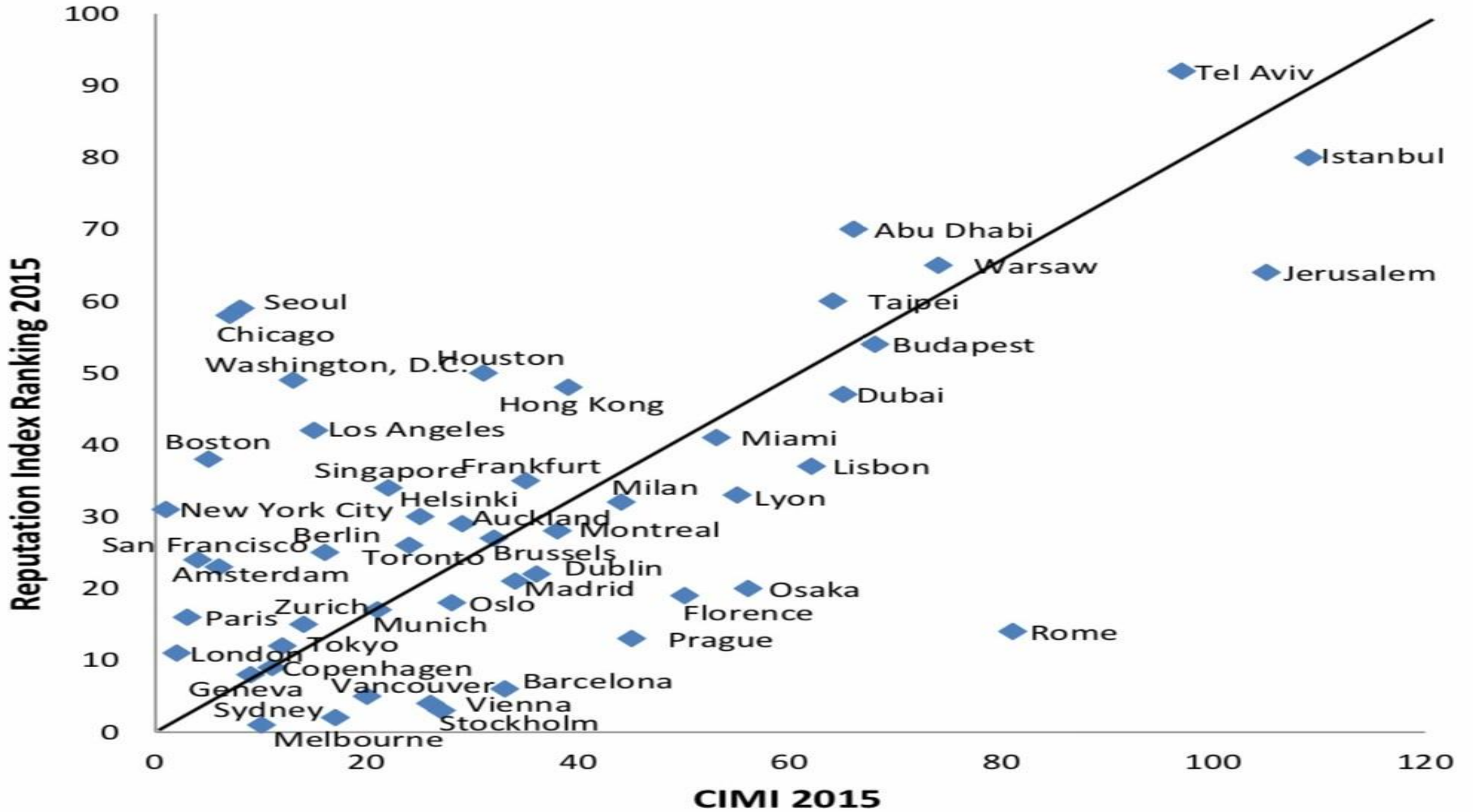
Jeddah-Saudi Arabia
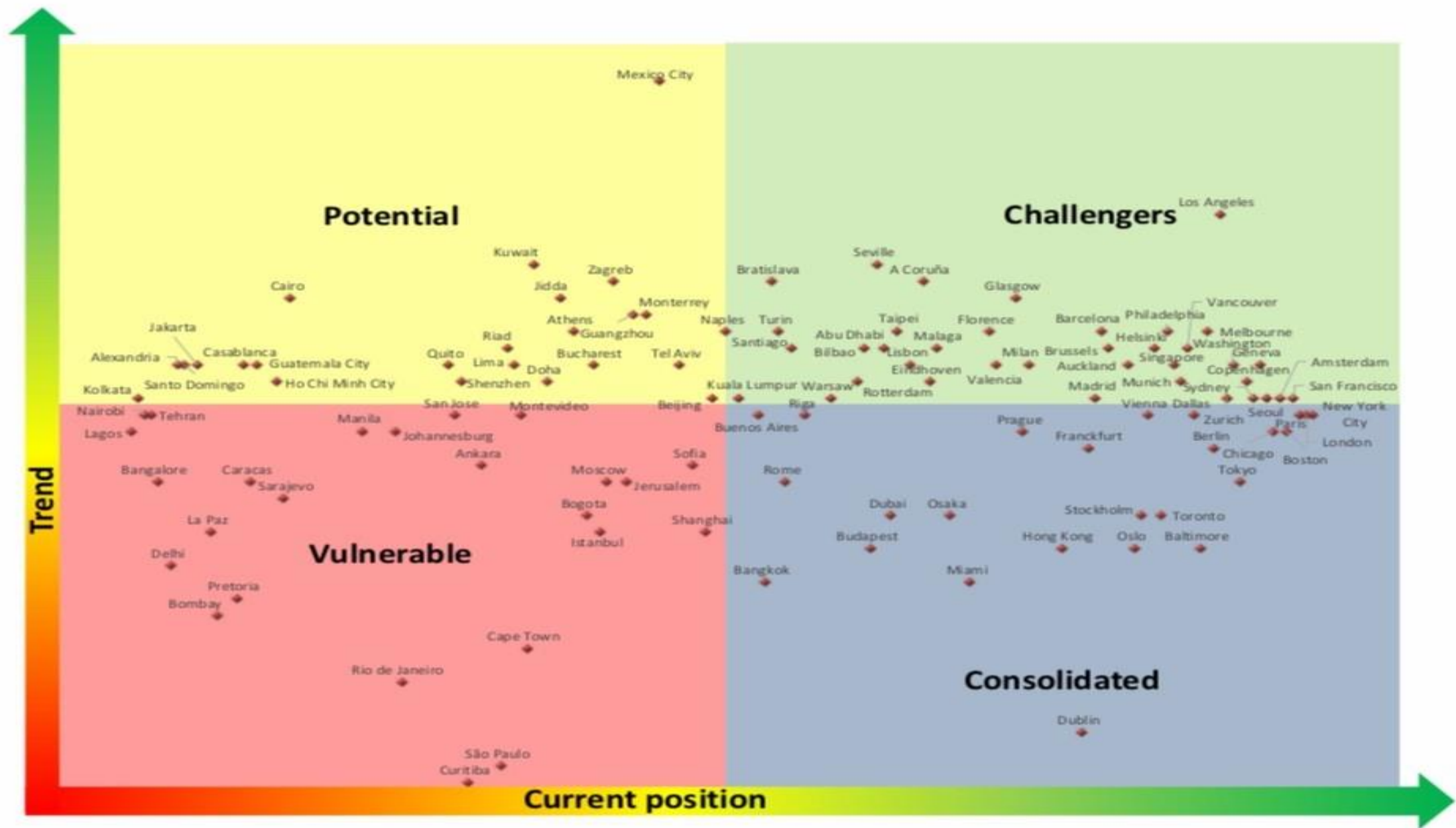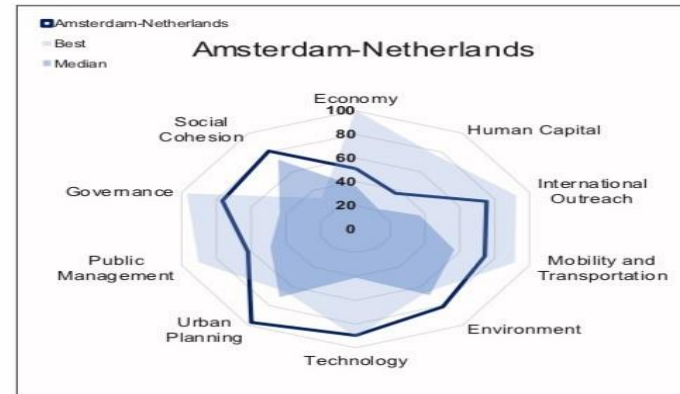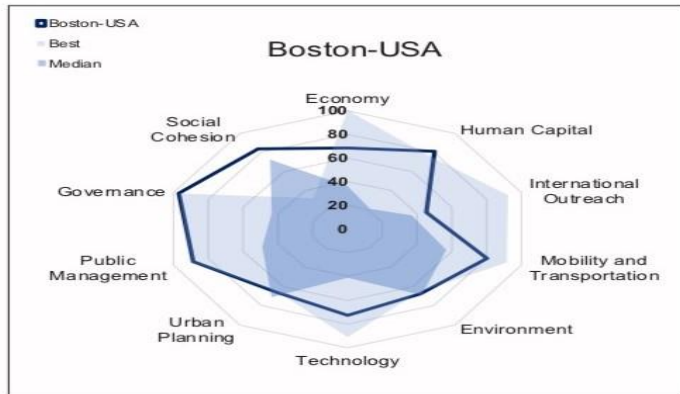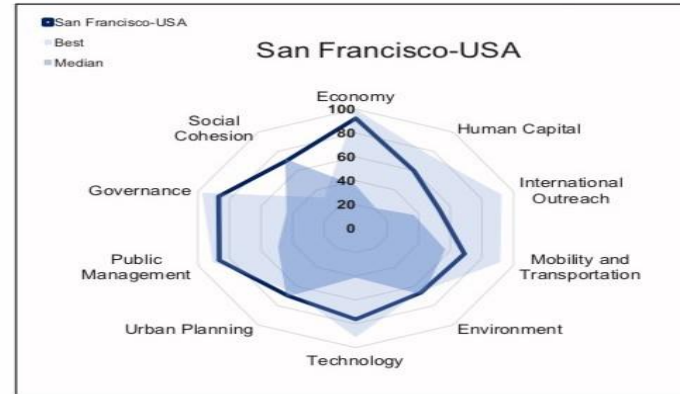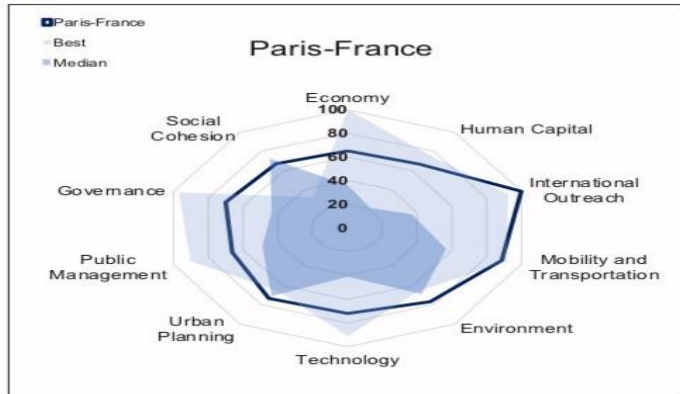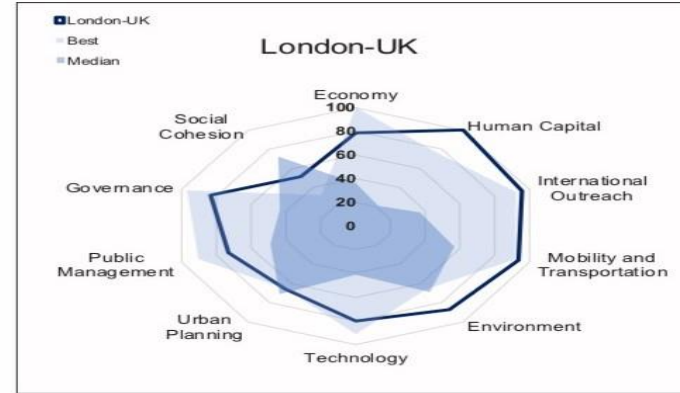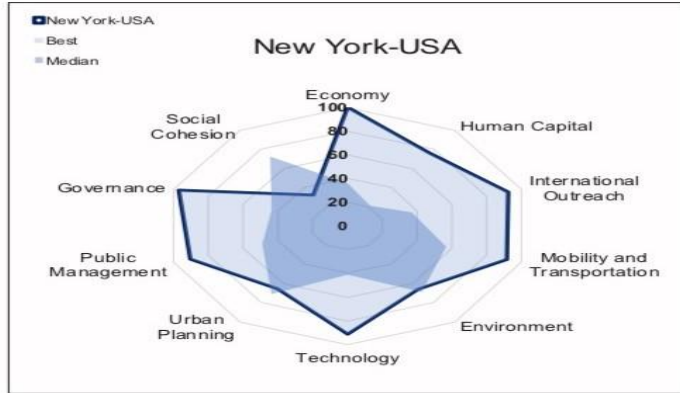
Legend:
- Jeddah-Saudi Arabia
- Best
- Median

Axes: Economy, Human Capital, International Outreach, Mobility and Transportation, Environment, Technology, Urban Planning, Public Management, Governance, Social Cohesion

Scale: 0, 20, 40, 60, 80, 100
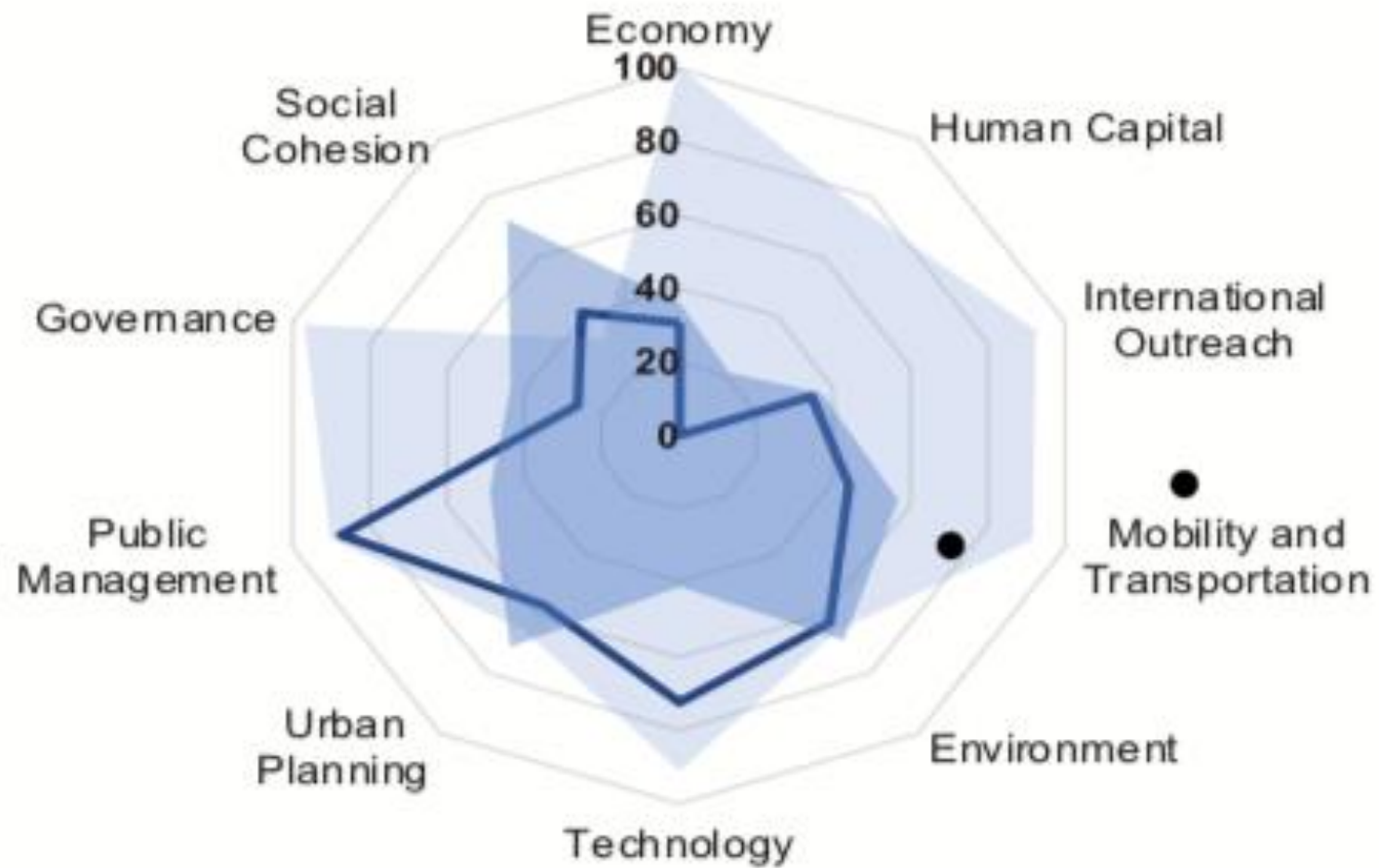
CITY	2015	2016	2017	2015-2016	2016-2017
New York-United States	2	1	1	↑ 1	→ 0
London-United Kingdom	1	2	2	↓ -1	→ 0
Paris-France	3	3	3	→ 0	→ 0
Tokyo-Japan	4	4	4	→ 0	→ 0
Reykjavik-Iceland	5	5	5	→ 0	→ 0
Singapore-Singapore	6	6	6	→ 0	→ 0
Seoul-South Korea	7	7	7	→ 0	→ 0
Toronto-Canada	9	8	8	↑ 1	→ 0
Hong Kong-China	8	9	9	↓ -1	→ 0
Amsterdam-Netherlands	11	11	10	→ 0	↑ 1
Berlin-Germany	10	10	11	→ 0	↓ -1
Melbourne-Australia	15	12	12	↑ 3	→ 0
Copenhagen-Denmark	16	16	13	→ 0	↑ 3
Chicago-United States	13	14	14	↓ -1	→ 0
Sydney-Australia	17	13	15	↑ 4	↓ -2
Stockholm-Sweden	18	18	16	→ 0	↑ 2
Los Angeles-United States	14	15	17	↓ -1	↓ -2
Wellington-New Zealand	23	19	18	↑ 4	↑ 1
Vienna-Austria	20	20	19	→ 0	↑ 1
Washington-United States	21	17	20	↑ 4	↓ -3
Boston-United States	19	22	21	↓ -3	↑ 1
Helsinki-Finland	31	30	22	↑ 1	↑ 8
Oslo-Norway	12	24	23	↓ -12	↑ 1
Zurich-Switzerland	22	23	24	↓ -1	↓ -1
Madrid-Spain	29	26	25	↑ 3	↑ 1
Barcelona-Spain	34	29	26	↑ 5	↑ 3
San Francisco-United States	24	25	27	↓ -1	↓ -2
Auckland-New Zealand	25	31	28	↓ -6	↑ 3
Bern-Switzerland	26	27	29	↓ -1	↓ -2
Dublin-Ireland	33	21	30	↑ 12	↓ -9
Hamburg-Germany	37	33	31	↑ 4	↑ 2
Geneva-Switzerland	27	32	32	↓ -5	→ 0
Göteborg-Sweden	36	39	33	↓ -3	↑ 6
Basel-Switzerland	38	36	34	↑ 2	↑ 2
Ottawa-Canada	35	37	35	↓ -2	↑ 2
Vancouver-Canada	30	28	36	↑ 2	↓ -8
Munich-Germany	28	35	37	↓ -7	↓ -2
Montreal-Canada	39	38	38	↑ 1	→ 0
Houston-United States	32	34	39	↓ -2	↓ -5
Prague-Czech Republic	43	40	40	↑ 3	→ 0
Dallas-United States	42	44	41	↓ -2	↑ 3
Frankfurt-Germany	47	45	42	↑ 2	↑ 3
Rotterdam-Netherlands	46	43	43	↑ 3	→ 0
Lyon-France	48	46	44	↑ 2	↑ 2
Milan-Italy	58	49	45	↑ 9	↑ 4
Philadelphia-United States	41	41	46	→ 0	↓ -5
San Diego-United States	49	50	47	↓ -1	↑ 3
Brussels-Belgium			48	↓ -3	↓ -1
Riga-Latvia	45	48	49	↓ -3	↓ -1
Tallinn-Estonia	40	42	50	↓ -2	↓ -8

TABLE 3. ECONOMIC INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
16	Productivity	Labor productivity calculated as GDP/working population (in thousands).	Euromonitor
17	Time necessary to start a business	Calendar days needed to complete the procedures involved in the legal operation of a company.	World Bank
18	Ease of starting a business	The top positions in the ranking indicate a more favorable regulatory environment for creating and operating a local company.	World Bank
19	Number of headquarters	Number of headquarters of publicly traded companies.	Globalization and World Cities (GaWC)
20	Percentage of people at early business stage	Percentage of 18 to 64-year-old population who are new entrepreneurs or owners/managers of a new business (no more than 42 months).	Global Entrepreneurship Monitor
21	Entrepreneurs	Companies in an initial phase that represent a city's economic bases. They represent economic dynamism and include a high proportion of companies devoted to technology. Used per capita.	2thinknow
22	GDP	Gross domestic product in millions of U.S. dollars at 2014 prices.	Euromonitor

TABLE 7. MOBILITY AND TRANSPORTATION INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
42	Traffic index	The traffic index is estimated by considering the time spent in traffic and the dissatisfaction this generates. It also includes estimates of CO_2 consumption and the other inefficiencies of the traffic system.	Numbeo
43	Inefficiency index	The inefficiency index is an estimate of the inefficiencies in traffic. High values represent high rates of inefficiency in driving, such as long journey times.	Numbeo
44	Number of road accidents	Number of road accidents per 100,000 inhabitants.	Euromonitor
45	Metro	Number of metro stations per city.	2thinknow
46	Flights	Number of arrival and departure flights (air routes) in a city.	2thinknow
47	Means of transportation	The means of transportation represents the public transportation options for smart cities. The value of the variable increases if there are more transportation options. The lack of transportation options can reduce the attractiveness of a city as a smart destination.	2thinknow
48	Index of traffic for commuting to work	Index of traffic considering the journey time to work.	Numbeo
49	Bike sharing	The bicycle-sharing system shows the automated services for the public use of shared bicycles that provide transport from one location to another within a city. The indicator varies between 0 and 2 according to how developed the system is.	The Bike-sharing World Map

TABLE 8. URBAN PLANNING INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
50	Percentage of the population with access to sanitation facilities	Percentage of the population with at least sufficient access to facilities for the disposal of excreta that can efficiently avoid the contact of humans, animals and insects with excreta.	World Bank
51	Number of people per household	Number of people per household.	Euromonitor
52	Bicycle shops	Number of bicycle shops per capita.	2thinknow
53	Architects	Number of architecture firms per capita.	2thinknow
54	Cycling	Cycling enthusiasts per capita. Bicycle use represents both a sustainable measure of transportation and a metric for a city's exercise and cultural aptitude. Many cities that historically are smart cities have a positive correlation with the presence of a cycling culture (weather permitting).	2thinknow

TABLE 10. TECHNOLOGY INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
60	Number of broadband subscribers	Number of broadband subscribers per country with a digital subscriber line, cable modem, or other high-speed technology, per 100 inhabitants.	World Bank
61	Broadband	Number of broadband users within a city, including wireless and fixed connections.	2thinknow
62	IP addresses	Number of IP addresses per capita.	2thinknow
63	Facebook	Number of Facebook users per capita.	2thinknow
64	Mobile phones	Number of mobile phones per capita	2thinknow
65	Quality of Web services	The quality of the city council's website measures the commitment of its information technology policy, support for the development of local businesses, and other technology initiatives. Scale from 0 to 5, the maximum corresponding to the website with the best-quality services.	2thinknow
66	Innovation index	Innovation index (Innovation Cities Index). Valuation of 0 (no innovation) to 60 (a lot of innovation).	Innovation Cities Program
67	Smartphones	Number of smartphones per capita. The use of smartphones and their penetration are a good indicator for the use of technologies.	2thinknow
68	Wi-Fi hot spot	Number of wireless access points globally. They represent the options to connect to the Internet by businesspeople while traveling.	2thinknow

Social Impact

https://ottawa.impacthub.net/2018/05/07/what-do-we-mean-when-we-talk-about-smart-cities/

Challenges

https://youtu.be/z72G4WXQ_IY

Smart City

Anatomy Of A Smart City: Four Stars On The Global Stage

Insights Contributor

FORBES

INSIGHTSWith**Intel IoT**

It takes smart planning to build a smart city—a seamless synergy of high-tech experts, business visionaries, academics and, above all, forward-thinking civic leaders. Yet before the first sensor is locked in place or the first network switched on, the build must gravitate around the most precious resource of all. A recent study by Juniper Research and Intel puts it best: For all the dissections and analyses of what makes smart cities great, *"they do not sufficiently account for the most important part of the city itself: its citizens"*.

The Ethics of Smart Cities

https://youtu.be/7sWnNzczF90

Smart City: Is it?

وَلَوْ أَنَّ أَهْلَ الْقُرَىٰ آمَنُوا وَاتَّقَوْا لَفَتَحْنَا عَلَيْهِم بَرَكَاتٍ مِّنَ السَّمَاءِ وَالْأَرْضِ وَلَٰكِن كَذَّبُوا فَأَخَذْنَاهُم بِمَا كَانُوا يَكْسِبُونَ

And if only the people of the cities had believed and feared Allah, We would have opened upon them blessings from the heaven and the earth; but they denied [the messengers], so We seized them for what they were earning."

وَضَرَبَ اللَّهُ مَثَلًا قَرْيَةً كَانَتْ آمِنَةً مُّطْمَئِنَّةً يَأْتِيهَا رِزْقُهَا رَغَدًا مِّن كُلِّ مَكَانٍ فَكَفَرَتْ بِأَنْعُمِ اللَّه فَأَذَاقَهَا اللَّهُ لِبَاسَ الْجُوعِ وَالْخَوْفِ بِمَا كَانُوا يَصْنَعُونَ

And Allah presents an example: a city which was safe and secure, its provision coming to it in abundance from every location, but it denied the favors of Allah. So Allah made it taste the envelopment of hunger and fear for what they had been doing.

Smart City: Is it?

وَإِذْ قُلْنَا ادْخُلُوا هَٰذِه الْقَرْيَةَ فَكُلُوا مِنْهَا حَيْثُ شِئْتُمْ رَغَدًا وَادْخُلُوا الْبَابَ سُجَّدًا وَقُولُوا حِطَّةٌ نَّغْفِرْ لَكُمْ خَطَايَاكُمْ وَسَنَزِيدُ الْمُحْسِنِينَ

And [recall] when We said, "Enter this city and eat from it wherever you will in [ease and] abundance, and enter the gate bowing humbly and say, 'Relieve us of our burdens.' We will [then] forgive your sins for you, and We will increase the doers of good [in goodness and reward]."

وَمَا كَانَ رَبُّكَ لِيُهْلِكَ الْقُرَىٰ بِظُلْمٍ وَأَهْلُهَا مُصْلِحُونَ

Challenges …..

Social, Technical, Awarness, Managemet, diversified, ...

- **It is Ethics**

Smart City – Journeys in History, Innovation, etc.
(c) H. AlSamarrai

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شكراً جزيلاً

Thank you very much

والسلام عليكم ورحمة الله وبركاته